

Nursing ... in Pelvic Surgery

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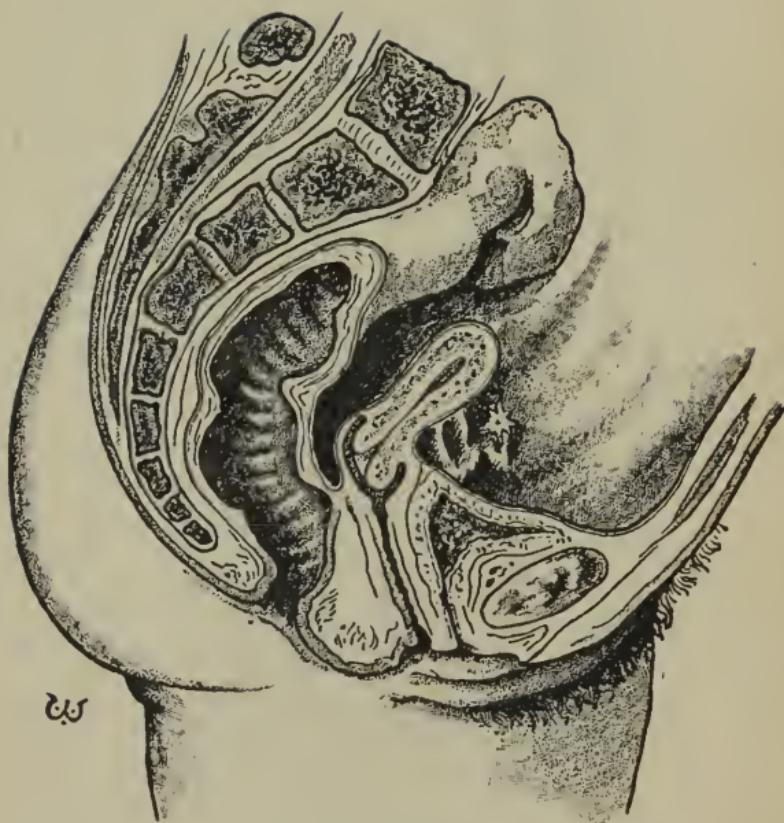
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MEDIAN SECTION, SHOWING FEMALE PELVIC ORGANS.

A MANUAL

OF

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Nursing in Pelvic Surgery.

BY

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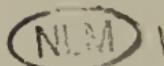
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PREFACE.

THIS hand-book originated in some "working notes" prepared by the author for the use of the nurses of the Jennie Casseday Infirmary for Women. At the suggestion of Miss Sarah E. Dock, the efficient Supervising Nurse of that institution, they were revised and arranged in this form for publication.

This little volume does not pretend to be an exhaustive treatise on Gynaecological Nursing, but only a practical guide for nurses engaged in the surgical treatment of the diseases peculiar to women. The requirements of modern pelvic surgery make the services of intelligent and skilled nurses indispensable, and necessitate more accurate and detailed knowledge than is to be acquired from the numerous works on medical and surgical nursing which have been written. The methods given herein are those practiced by the author, have undergone the rigid test of

actual personal operative experience, and were adopted after extensive observation in the special hospitals of this country and of Europe. The effort has been made to lay aside theories and controversial points in so far as is possible, and to reduce operative methods to the basis of simplicity and practical efficiency.

For the substantial and convenient form of publication my thanks are due the well-known medical publishers and booksellers, Messrs. John P. Morton & Co., of this city.

If the work lightens the labor or renders more efficient the offices of those engaged in the noble profession of skilled nursing, it will have amply subserved its purpose.

L. S. McMURTRY.

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“ It is, unfortunately, a melancholy story
that ever since surgery began, the most of
the mischief was done by the surgeon him-
self. It was the willing and tender, though
unclean hand, that carried the poison into
the wounds.”

THOMAS KEITH.

CHAPTER I.

GENERAL CONSIDERATIONS.

THE lower part of the abdominal cavity is surrounded by the hip-bones and the terminal bones of the spinal column. The cavity thus formed is called *the pelvis*. In the female this cavity is occupied by the organs of reproduction, together with the lower bowel and bladder. In consequence of the important and complicated functions of these organs, their relation to other parts of the body, and the numerous accidents and changes to which they are subject, the pelvic cavity and its outlet are the seat of a variety of diseases. These diseases are so numerous and have so much to do with the health and life of women that they compose a special branch of medical science and practice, called *Gynæcology*. Formerly many of these diseases were treated by remedies administered internally; in modern times surgical methods have entirely supplanted such treatment, so that gynæcology is altogether a surgical science. In view of these facts the term *Pelvic Surgery* has come into common use as indicating the surgical treat-

ment of the diseases peculiar to women, and the author has adopted it as more appropriate for the title of this book.

Since the treatment of this large and important class of diseases consists, for the most part, of operative procedures which the nurse shares with the surgeon, special instruction is required by the nurse to qualify her for these responsible duties. These relate to the preparations for examination and for operation, assistance in operations, and management after operation and during convalescence. In these operations the weight of responsibility rests upon the surgeon, and the nurse discharges her responsible duties under his direction. It is not within her province to determine methods or alter treatment. Intelligent, accurate, and faithful carrying out of instructions, nothing more and nothing less, should be an absolute rule governing all her work. To do this intelligently and efficiently, she must know the principles underlying her efforts, and the objects and aims of the surgeon's manipulation and treatment, in a general way.

The internal organs of generation, commonly called the pelvic organs, are within the pelvic cavity and consist of the uterus, or womb, the Fallopian tubes and ovaries, and the vagina. The uterus is a pear-shaped organ, three inches

in length, one and one half inches in breadth, and about one inch in thickness. It weighs a little over one ounce. After child-birth these dimensions are somewhat increased, the uterus being both larger and heavier. The upper and greater portion of the uterus is called the *body*, and the lower portion, which communicates with and protrudes into the vagina, is called the *neck*. The opening in the neck (or *cervix*) is called the *mouth* (or *os*), and the portions of the cervix in front and behind the os are called respectively the anterior and posterior *lips*. The rounded surface at the top of the uterus is called the *fundus*.

The Fallopian tubes are two tubes or canals which extend from the upper portion of the uterus, one on each side, outward toward the sides of the pelvis. These tubes are enclosed in the broad ligaments (folds of the peritoneum), and are from three inches to five inches in length. The tube is smallest at the uterus and spreads out as it proceeds to its free extremity, where it is trumpet-shaped and surrounded by a fringe of projections called "fimbriæ." The tube is very small in caliber, being only large enough to admit the passage of a broom-straw. When at each recurring monthly period the ovum (or egg) is thrown off from the ovary it is caught by the

fimbriated extremity and carried along the tube to the cavity of the uterus. The Fallopian tubes are the direct route of infection from the cavity of the womb to the cavity of the pelvis (or peritoneum), and are subject to numerous forms of inflammatory disease requiring abdominal section.

The ovaries are situated on each side of the uterus in the same fold of the peritoneum which contains the Fallopian tubes, called the broad ligaments. They are oval in shape, of a pinkish pearly hue, and about an inch in length, a half inch in breadth, and a half inch in thickness. These dimensions vary slightly during menstruation and with the age of the individual. These small organs are subject to many alterations by disease, especially in developing numerous varieties of tumors. Under such changes these organs, each weighing in the natural state only eighty-seven grains, develop into large tumors sometimes weighing over a hundred pounds. Such growths are known as ovarian tumors.

The broad ligaments on each side of the uterus, enveloping the ovaries and Fallopian tubes, are commonly designated *en masse* as "the uterine appendages," this term including both ovaries and Fallopian tubes.

Immediately in front of the uterus and behind the pubic bone is the bladder. The canal through

which the urine is passed is called the urethra, and the external opening of this canal is an important anatomical point, since its location must be known in order to introduce the catheter. The nurse should learn the exact location of this opening.

The ureters are a pair of tubes or canals which convey the urine from the kidneys to the bladder. Each ureter is from fifteen to eighteen inches long, and about the diameter of a goose-quill. The ureters descend obliquely from each kidney converging toward the middle, and, after entering the pelvis, pass forward toward the bladder, into which they empty. They lie in front of, and very close to, the neck of the uterus.

Just behind the uterus is the rectum, the lowest and terminal extremity of the large bowel. The vagina is the canal leading from without up to the neck of the uterus. Between the external opening of the vagina (the vulva) and the external opening of the rectum (the anus), covered by the skin, is a firm mass of flesh, composed of muscle and fascia, called the *perineum*. This firm structure is about one and one half inches in length, is between vagina and rectum, and is very important. It forms the firm floor of the pelvic cavity, supports all the pelvic organs, and when torn apart the uterus, bladder, and rectum

soon fall downward from their normal position. The perineum is frequently torn in child-birth, and perhaps the most common operation in pelvic surgery is that for restoring the integrity of this important structure.

Within the pelvis the bladder, uterus, and rectum are covered over by a smooth, glistening membrane called the peritoneum. This membrane also lines the entire cavity of the abdomen and pelvis, forms folds and ligaments to suspend the various organs in position, and furnishes smooth surfaces for the various movements to which these parts are subjected. The uterus is suspended in the pelvis by folds of this membrane, and the broad ligament, previously mentioned, is a double fold from the fundus of the uterus extending to the brim of the pelvis, and folding in its leaves the ovaries and Fallopian tubes.

Between the uterus and rectum the peritoneum dips low so as to form a pouch, called Douglas' pouch or space. This is the lowest extension of the peritoneum, and when lying on the back all free fluids in the abdominal or pelvic cavity will gravitate into this pouch. This is an important anatomical fact in relation to drainage of the pelvis after abdominal section, a subject to be treated in this volume. The peri-

toneum has wonderful powers of absorption, and when any foul, dirty, or infectious material is admitted to its surface, inflammation is established (peritonitis), which may extend over the entire abdomen, often terminating fatally.

By referring to the cut which forms the frontispiece of this book the position and relations of these organs may be studied to greater advantage than by this description alone.

The operations belonging to pelvic surgery may be classified under various heads. In a general way they are divided into major and minor operations, depending upon their gravity as to the life of the patient. They are also classified into abdominal sections (opening the cavity containing the abdominal and pelvic organs, therefore invading the peritoneum,) and plastic operations; by the latter term designating those operations for uniting torn and injured parts—such as lacerated perineum, vesico-vaginal fistula, etc. The application of the curette, dilatation of the cervix uteri, etc., belong to the class of minor operations. In many instances an anesthetic will not be required for minor operations; and when required, there is not the same degree of shock which often follows major operations. The same surgical principles, however, must be applied by the nurse in these operations

as in the more formidable operations beginning with abdominal section.

The following incomplete list will give a general idea of the scope of operative procedures belonging to pelvic surgery. The term abdominal section is applied to an incision through the walls of the abdomen in order to reach the organs contained in the abdomen and pelvis. This incision as a rule is made in the middle line of the abdomen, between the umbilicus and the pubes. Other terms have been suggested to indicate this operative step, such as laparotomy and coeliotomy, but abdominal section is preferable:

I. Operations on the Uterine Appendages.

(a) The Fallopian Tubes.

Abdominal Section for Salpingitis.

Abdominal Section for Hydro-Salpinx (Dropsey of Tube).

Abdominal Section for Pyo-Salpinx (Pelvic Abscess).

Abdominal Section for Tubal Pregnancy.

(b) The Ovaries.

Ovariectomy—removal of Ovarian Tumors.

Abdominal Section for removal of Uterine Appendages (ovaries and tubes) when both ovaries and tubes are diseased, and to arrest the growth of fibroid tumors of uterus.

2. Operations on the Uterus.

Hysterectomy—removal of the womb; this may be done by abdominal section, as for large tumors; or through the vagina, as for cancer.

Abdominal Section and Myomectomy—removal of tumors from the body of uterus.

Hysterorrhaphy—stitching the displaced uterus to the abdominal wall; abdominal section the first step in this operation.

Cæsarean Section—incision into uterus during pregnancy and extraction of child; abdominal section the first step in this operation.

Porro's Operation—removal of the uterus in addition to Cæsarean Section.

Abdominal Section for Ruptured Uterus.

Removal of tumors from interior of uterus through vagina.

Operations for lacerations and ulceration of neck of womb (trachelorrhaphy).

Curetttement.

3. Operations on the Peritoneum.

Abdominal Section for Purulent Peritonitis.

Abdominal Section for Tubercular Peritonitis, with or without encysted dropsy.

Abdominal Section for Internal Hemorrhage after operations.

4. Operations on the Bladder and Urethra.

Operations for Vesico-Vaginal Fistula.

Cystotomy, through vagina, for chronic cystitis.

Dilatation of Urethra for cystitis, and for removal of stone and tumors of bladder.

Removal of tumors from urethra.

5. Operations on the Vagina and Rectum.
 - Operation for Recto-vaginal Fistula.
 - Operation for Cystocele and Rectocele.
 - Operation for Hemorrhoids and Anal Fissure.
6. Operations on the Perineum (often involving rectum and vagina) for repair of injuries of varied extent made in parturition.

Pelvic surgery deals with a few organs, and the number of operations applied to the diseases of those organs seems limited, yet the field is very extensive. The variety of each form of disease is great, and operative methods must be adapted to the particular demands of individual cases. Inflammatory diseases of the ovaries and Fallopian tubes, ovarian and uterine tumors, present to the surgeon the utmost diversity of form and structure, with unlimited range of complications, and require varied and difficult operations. The intimate relation existing between the functions of these organs and the nervous and digestive systems adds to the complications presented. Above all, the sensitive, powerful, and revengeful properties of the peritoneum, which is directly or indirectly involved in all these operations, necessitate care, vigilance, and skill on the part of both surgeon and nurse. In no branch of the healing art is such responsibility attached to intelligent, faithful, and accurate observance

by the nurse of those rules established by modern surgery as in the practice of pelvic surgery. In this work "almost" and "very near" and "I believe so" must find no place in the nurse's vocabulary. Nothing short of accurate and positive knowledge, faithfully applied, will meet absolute requirements. The duties of the nurse preparatory and during operation are second in responsibility only to those of the surgeon; while in the after-treatment, the management of dressings, drainage-tubes, and other appliances, she assumes unlimited responsibility.

Some definite knowledge of the principles of modern pelvic surgery is indispensable to enable the nurse to intelligently appreciate and discharge these duties. A general knowledge of medical and surgical nursing will not suffice for this work; but special knowledge and training are essential. For a long period of time the diseases peculiar to women have formed a specialty in medical science and practice. The exalted position and brilliant results of modern pelvic surgery have been established by those who have devoted themselves to this branch as a specialty. Special knowledge and training here are quite as essential for the nurse as for the surgeon.

CHAPTER II.

PRINCIPLES.

NURSING in Abdominal and Pelvic Surgery requires those engaged in this responsible work to observe the most painstaking and constant surgical cleanliness that can be attained. The interior of the abdomen and the organs contained therein are covered by a delicate membrane, called the *peritoneum*, which has remarkable properties of absorption. Any poison admitted to this membrane, or to the tissues in its immediate vicinity, is rapidly absorbed and conveyed to the blood, producing blood-poisoning. Inflammation (known here as peritonitis), high fever, vomiting, and pain are due to such poisoning. Such poisoning in other parts of the body, for example the hand, will be followed by inflammation and suppuration (formation of pus), usually limited to a small area and with only slight fever and constitutional disturbance; in the peritoneum poisoning produces a severe and dangerous illness, often ending in death. Hence the necessity for the most refined and accurate observance of the precautions necessary to pre-

vent such poisoning in this special department of surgery.

The poisoning mentioned above is caused by admission to the wound of minute organic substances which exist almost everywhere and are called *germs*. Modern surgery aims to prevent wound-infection by excluding all these infectious germs. These invisible bodies (visible with the aid of the microscope) are the agents of infection, and are abundant in all substances and upon all surfaces which are known to us ordinarily as "*dirty*." But more than this, what may be commonly known in housekeeping and in maintaining neatness of person as cleanliness is not sufficient for *surgical* cleanliness. In addition to the removal of all visible dirt, surgery requires the removal of those germs invisible to the naked eye which are poisonous to the system. The virulent germs of disease may be transported beneath the finger nails from one patient to another. The immaculate hand of the neatest person, if that hand be not cleaned by surgical methods, will convey infection to a wound; and the cleanest hand, if touched to any ordinary furniture or clothing, can obtain and convey poisonous germs to a wound, even though it be to the eye unsoiled.

These minute substances, so powerful for evil

in surgical operations, abound in the dust of cities and houses, pervade our clothing, and are found upon ornaments, such as rings, bracelets, combs, etc. Their multiplication and activity are favored by moisture. Fortunately infection of wounds does not obtain through the air, but only occurs *by contact*. Surgical operations can be done in the air of hospital wards without infection, provided substances bearing the infectious germs do not come in contact with the field of operation. Of course the danger is greater amid such surroundings, and the precautions to prevent infection more difficult and laborious, but the fact remains beyond question. Every thing that touches or comes in momentary contact with the wound must be free from these minute substances called germs. In this connection it must be constantly remembered that an instrument or hand which is surgically clean may become infected by passing in hasty contact with any hand or surface which is not also surgically clean. In this way the slightest violation of the rules of surgical cleanliness may render useless all the most careful and rigid precautions previously and subsequently observed. Hence these rules, to be effectual, must be scrupulously and rigidly adhered to by each one engaged in an operation.

Since contact is necessary for infectious germs

to gain access to a wound, it is necessary that the utmost care be observed as to those objects which, during the course of an operation, touch the field of operation. These are the immediate area of the field of operation (the skin of the patient), the finger nails and hands of the operator and his assistant, the instruments, sponges, ligatures, sutures, and dressings.

It has been found that all organic substances which convey infection can be effectually removed, if accessible, by mechanical cleansing with soap, brush, and hot water. In this way the hands may be freed from germs by mechanical cleansing with every assurance of efficiency and safety. This thorough and careful state of cleanliness is called *asepsis*. For the joints and teeth and uneven surfaces of instruments this is not always sufficient. Since it has been found that infectious germs are destroyed by a high degree of heat, this agent is utilized for destroying any germs that may lurk upon uneven surfaces of instruments or in the coils and meshes of ligatures. To plunge instruments, previously cleaned, in boiling water or place them in a steam sterilizer or oven, and allow them to remain thirty minutes, will guarantee their freedom from infectious germs. The ligatures and sutures may be treated in the same way. This method of

freeing materials from infectious germs is known as *sterilization*. When chemical agents, such as carbolic acid and bichloride of mercury, are used to destroy infecting material the process is known as *antisepsis*, and these agents are termed *antiseptics*. These latter agents (chemical germicides) are not used in abdominal sections, since they are known to injure the delicate surface of the peritoneum and produce disastrous results. These chemical antiseptic agents are valuable in general surgery, and are advantageously used preparatory to operations upon the vagina and neck of the uterus in order to destroy the infection of foul secretions and discharges, but should never be applied to the peritoneum. Since fluids used in any part of an operation so readily find their way to all exposed surfaces, it is best that chemical solutions be altogether excluded from the operative paraphernalia in cases of abdominal section.

The practical application of the above principles of surgical cleanliness by surgeons, assistants, and nurses may appear quite simple and easy; but really it is very difficult and requires conscientious intelligence, faithful application, and rigid training. As a chain is no stronger than its weakest link, so all the care of preparation and operation will end in failure if these

principles be disregarded in any single particular by surgeon, assistant, or nurses.

For uniformly successful work the nurse must cultivate habits of cleanliness of person and apparel in her daily life, and bring to the discharge of her duties in the operating-room knowledge of the principles enunciated above, together with conscientious appreciation of the responsibility of participating in operations involving the lives of human beings. The practice of this department of nursing is indeed the highest expression of the science and art of nursing, and when successfully accomplished demonstrates the highest skill. Cleanliness is usually associated with good breeding and self-respect, qualities most essential in the character of a capable and efficient surgical nurse. Dr. Weir Mitchell gives as the prime qualifications for an accomplished nurse "good breeding and loveliness of manners;" and Mr. Greig Smith, in his classical treatise on abdominal surgery, says "a perfect nurse is a perfect woman," mentioning among her most essential characteristics "good temper, gentleness, and cleanliness." To these qualities I would add a keen sense of personal responsibility and conscientious appreciation of duty. In nursing in pelvic surgery the nurse's responsibility is very great; it is second only to that incurred by the

operator, and is increased by the fact that the odium of her dereliction will rest upon the operator. This responsibility relates for the most part to her observance of the principles and rules of surgical cleanliness. Her failure or negligence in this respect will render the work of the best operator disastrous, and infection with all its destructive consequences will follow. Her conscience must be alone her guide and censor, since no surgeon can exercise a surveillance over the nurse in all the details of her duties preparatory to, during, and after operation. Hence the practice of this calling demands a high order of womanhood, with intelligence to master the scientific principles underlying aseptic surgery, with innate refinement so essential for practicing surgical cleanliness, and with conscientious convictions as to duty.

With *earnestness of purpose* and *application* the principles given above may be readily comprehended; and with *attention* and *industry*, proficiency may be attained in practice. When thoroughly understood in principle and mastered by daily practice, this seems simple and easy of accomplishment; but to those beginning and to those already proficient, eternal vigilance and unrelenting care are alike the price of success.

CHAPTER III.

PREPARATION OF INSTRUMENTS, ETC.

THE instruments used in all operations should be kept thoroughly cleaned, and when not in use should be placed in a cabinet provided for that purpose. But something more than ordinary cleanliness of instruments is necessary in preparation for a surgical operation, especially if that operation be abdominal section. This preparation should be made by the supervising nurse on the evening preceding the morning of operation. No method of sterilization, either by chemicals or heat, will take the place of pains-taking cleansing with hot water, soap, and brush.

After the nurse has thoroughly prepared her hands and put on a fresh, clean apron, the instruments to be used are placed on a towel spread upon a small table. A large agateware basin is best adapted as a receptacle for cleansing the instruments and trays to contain them. Pressure forceps, scissors, needles, scalpel, and instrument trays are all placed in the agate dish and boiling water from the tea-kettle poured over them. The nurse then takes her seat and with a clean nail-

brush and soap washes and brushes each instrument, being careful to take apart and cleanse thoroughly about the joints, teeth, and catches of the instruments. The eyes of needles should receive special care. After being thoroughly cleansed with soap and brush, fresh hot water should be poured over them to wash off the soap, and the instruments are then taken out and wiped dry with a clean towel and placed in the trays in which they are to be used in the operation. As a final precaution the instruments may be rinsed with alcohol. When the instruments have been in contact with purulent material and septic matter in the course of operation, they should be boiled for at least fifteen minutes after being scrubbed with hot water and soap. Carbonate of soda should be added to the water (solution of one per cent) to protect the plated surfaces from rust and tarnishing. The instruments to be boiled are first taken apart and scrubbed in hot water with brush and soap; they are then laid out in groups according to size, and put in two or three linen bags made for this purpose. The bags are closed with draw-strings and dropped into a kettle of boiling water, leaving the ends of the strings hanging out over the edge to facilitate their removal. Instruments may be kept bright and free from tarnish by scouring them occasionally with Sapolio.

Glass drainage-tubes, trocars, and irrigating apparatus should all be cleansed by passing through them currents of hot water and wiping out carefully with dry gauze. The syringe to be used in emptying the drainage-tube should be taken apart and cleansed thoroughly in the same way. Very hot water injures these syringes, but by removing the piston the barrel can be irrigated, and the piston and washer thoroughly cleaned with warm water and rubbed with gauze. Finally it is purified with dilute sulphurous acid. The syringe should then be tested to see if it works well. After the instruments for the operation are all prepared and placed in the trays, a clean towel should be wrapped around all and securely pinned, not to be opened until the operation. Just before the operation begins boiling water should be poured over the instruments in the trays.

SPONGES.

The preparation and preservation of sponges involve most exacting care, inasmuch as in abdominal sections the sponges are always passed into the peritoneal cavity, and if not surgically clean may be a most ready means of infection. When sponges are new they must be prepared for use by removing first all chalk and sand

contained in their meshes. This is best accomplished by putting the sponges into a linen bag and beating them thoroughly on the firm surface of a table. In this way the sand is loosened. They are then placed in cold filtered water, and thoroughly washed in many changes of water until all sand and dirt are removed. Boiling water takes all the life out of a sponge, that is, destroys its elasticity; cold or tepid water alone should be used in cleaning and preparing them for surgical use. After being thoroughly cleansed of chalk, sand, and dirt in this way, the sponges are placed in a china bowl, covered with clean, pure water, to which has been added hydrochloric acid in the proportion of two drachms to the pint. They are allowed to remain in this solution for twenty-four hours, when the acid will have dissolved the remaining chalk and silicates in the sponges. After taking them from the acid solution they are again washed in pure cold water, and then placed back in the china bowl (which has been emptied and washed), and covered with equal parts of sulphurous acid and water. A china bowl should be used for this solution, as the acid will destroy tin and iron. The sponges remain in this solution for twenty-four hours, are then removed and again washed in pure water, and placed for future use in a jar of abso-

lute alcohol. When the sponges are required for use the nurse, after carefully cleansing her hands, removes the top of the jar and takes out the required number of sponges. For ordinary abdominal section four sponges, of average size used in abdominal and pelvic surgery, will be found sufficient. The sponges should be of the very finest quality, and only perfect sponges should be used; that is, sponges that are without torn and ragged surfaces which might leave particles in the peritoneal cavity. The sponges should not be removed from the jar until a few minutes before the operation begins. They should be rinsed out in pure water and placed in appropriate basins. Two choice sponges should always be kept to themselves in a covered basin on the nurse's table, to be used after the abdominal cavity has been entered and cleansed. These sponges are known as the "reserve" sponges, and must be reserved for use in the finishing touches of the toilet of the peritoneum. The supervising nurse should invariably make a note of the number of sponges laid out for the operation, and be prepared to give an account of them before the operator closes the abdominal incision. Lives have been lost in the hands of expert operators by leaving sponges in the abdomen, and much embarrass-

ment and confusion may be caused by misplacing a sponge or tearing one in two parts. When the operation is completed, if pus or other septic material has been encountered in the operation, the sponges should be thrown away and destroyed. Under no circumstances should they be allowed to remain in the house, as they are liable to do irreparable mischief by mistake of their identity. If no such septic material as indicated should be encountered in the operation the sponges should be cleansed and preserved for future use.

As soon as the operation is completed the sponges to be preserved are placed in a basin of water and thoroughly washed out. They are then placed in a china bowl in a strong solution of sal-soda. The sponges are covered with water and a half handful of sal-soda is thrown into the bowl. They are allowed to remain in this solution for twenty-four hours; the soda will dissolve all blood-clots and fibrin. The same process is perhaps more effectively accomplished by washing and kneading the sponges in a bowl of warm soap-suds, afterward washing thoroughly in cool filtered water changed several times. At the end of twenty-four hours the sponges are rinsed out of the soda solution, thoroughly washed in fresh water, and then returned to the china bowl,

which has been washed out, and covered with a solution of equal parts of pure filtered water and sulphurous acid. After remaining in this solution twenty-four hours, they are washed in pure water and returned to the jar of alcohol. While being prepared by these processes, the bowl containing the sponges should be covered with a clean towel and placed in the operating-room, which can be securely locked, thereby preventing an inadvertent observer from touching them.

WATER.

The water used in operations (especially abdominal sections) should have been passed through the Pasteur filter and placed in the covered vessels provided for heating it and handling it during the operation. This should be done by the supervising nurse the evening preceding the morning of operation with the same painstaking care of the vessels as she observed in preparing the instruments. A nurse should go to the kitchen with the buckets of water and remain there during the process of heating, or be sure to have some trustworthy person who understands the importance of such care to see that no one raises the top of the receptacle and introduces the finger to see if the water is hot, or otherwise contaminate the water. From four to

six gallons of water should be prepared for every operation. The vessels should be allowed to remain on the range until the water reaches the boiling point. The water should be brought into the operating-room just as administration of the anesthetic is begun.

DRESSINGS.

The preparation of dressings should also be completed at the same time that the instruments are prepared and the water provided for the operation. Gauze may be prepared in quantity by the nurse. A bolt of cheesecloth should be purchased, and allowed to stand for an hour in soap-suds. This removes the "sizing." It is then washed thoroughly and wrung out of clear water several times. It is then dried and sterilized in an oven. It should then be rolled up carefully, wrapped in clean paper, and put away in a closed box or drawer so as to protect it from dust. Gauze for surgical dressings is now prepared by manufacturers of surgical dressings with skillful observance of aseptic methods, and at most reasonable prices. The author has obtained for some time both plain aseptic and iodoform gauze of superior quality from Messrs. Johnson & Johnson, of New York. The gauze should be unrolled upon a table covered with a clean

towel; the nurse should see that her hands are thoroughly cleaned, and strips of gauze should be cut and folded of proper size to surround the field of operation. Strips of sufficient size and thickness should also be prepared for dressing the incision. If the operation is to be an abdominal hysterectomy or ovariotomy, a very liberal supply of gauze should be prepared. A jar of iodoform gauze should also be placed conveniently at hand in case it is needed. The additional dressings consist of the flannel bandage, absorbent cotton, and safety-pins. A caster of iodoform, for dusting the incision when closed, should be placed with the dressings. An abundance of clean towels, which should never be used except in operations, are laid out ready for use. The towels to be used in operations should have a mark to designate them, and should be laundried with special care, always separate from the general laundry of clothing and household linen. This important precaution should be looked after by the nurse. This preparation, if carefully done, is preferable to sterilization by steam. The surgeon's aprons should be washed with the towels. All dressings are then covered with a clean towel or sheet until the operation.

It is an important part of the supervising nurse's preparation for the operation to see that

on the evening preceding the morning of operation all the basins and buckets be thoroughly scoured and scalded with hot water. This is as essential a part of the process of preparation as the cleansing of instruments. Only a pure, unscented soap should be used in surgery, and the brushes should be cleansed and passed through a solution of sulphurous acid after each operation.

LIGATURES AND SUTURES.

As a rule it is best to allow the surgeon to select for himself the ligatures and sutures to be used, since the requirements of each operation are best anticipated by him. This can readily be done at the time of operation. Fine imported Chinese twist silk, in three sizes, and silk-worm gut for sewing the incision, will generally suffice for all ordinary operations. Cat-gut is difficult to cleanse, and does not make a reliable ligature or suture, although used by some surgeons in both plastic and intra-pelvic operations. The silk ligatures and sutures are cut and bunched, then enveloped in gauze preparatory to sterilization in boiling water or steam. Silk-worm gut after being washed should be kept in alcohol; the nurse should lay out such quantity as may be indicated by the surgeon, and pour boiling water over it before the operation begins. This material does not "work" easily when dry.

In operations at the home of the patient, or in other private houses, these preparations must necessarily be modified to a certain extent, but the same principles should be applied. The instruments, with containing trays, towels, dressings, sponges, and all necessary articles, including nail-brush and soap, should be put into a large satchel or bag, and taken to the house where the operation is to be performed. The water should be prepared as previously described, and sent to the house in a sealed five-gallon demijohn. In operations of emergency, such as that for extra-uterine pregnancy, time will not allow previous preparation of water by filtering, when water must be taken from the ordinary source of supply, boiled, and strained through a towel. The room should also be thoroughly cleaned beforehand, and all unnecessary furniture and clothing removed. The nurse should precede the surgeon to the house, and go to the kitchen and provide for heating the water. A new vessel should be secured for this purpose, and should be carefully scoured and scalded. Three new tin basins for water and sponges, and a three-gallon tin bucket for water should be obtained; all should be scoured and scalded either by the nurse personally or under her supervision. Two large pitchers for irrigation should be like-

wise cleansed. As soon as prepared these articles should be taken to the room where the operation is to be done. The kitchen-table may be utilized for an operating-table; two small tables in close juxtaposition may serve the purpose. If not an emergency, and in all cases where the strength of the patient will permit, the patient should be thoroughly bathed and have a change of clothing.

The patient should be anesthetized in an adjoining room, and be carried into the room where the operation is to be performed. Every thing for the operation should be in readiness when the anesthetic is started. In all other particulars the methods heretofore described are applicable.

Whenever it is necessary to operate in the room of the patient, as is customary with many distinguished and successful surgeons, the preparations are made in an adjoining room or hall. The tables containing instruments, apparatus, water, etc., and operating-table, are noiselessly carried into the room and arranged in proper position after anesthesia is begun. Immediately after the operation all these articles can be removed and the room set in order before the patient regains consciousness.

CHAPTER IV.

PREPARATION OF PATIENT.

WHEN the attending surgeon directs the preparation of the patient for operation the following directions should be carried out by the nurse in charge of the patient, with such aid from the supervising nurse as may be required.

If the operation be a plastic operation, such as for laceration of the perineum, or lacerated cervix, or similar operation, the patient should be put to bed the entire day before the operation is to be performed. On the morning of this day before operation she should receive a saline purgative (Rochelle salts, Epsom salts, Hunjadi water), and also a vaginal douche administered by the nurse. The douche should consist of pure hot water unless some antiseptic is indicated. On the morning of the operation the patient should receive a bath of warm water with soap, especial care being taken to cleanse the pubes and adjacent parts. It is not necessary to shave the hair from these parts, provided the cleansing with warm water, soap, and brush be

done thoroughly and be followed by the liberal application of alcohol. It will often be necessary to douche the vagina with, and apply to the adjacent external parts, a solution of bichloride of mercury 1 to 1,000. She should also receive, the morning of the operation, an enema of warm water with soap or glycerine, and the vaginal douche should be repeated. No food should be allowed the patient on the morning of the day of operation.

When the patient is to be prepared for the operation of abdominal section for any condition whatever, the preparation should begin, if possible, three days before the operation is to be performed. The patient should be put to bed, and receive a bath of warm water and soap every morning. She should receive a saline purgative every morning before breakfast, and, if necessary, the dose should be repeated before dinner until five or six movements of the bowels are produced daily. This treatment should be continued over the three days preparatory to operation. During these three days the diet should be restricted so as to consist of soup and broth, tea and toast, soft boiled eggs, a tender piece of fresh meat, tea and coffee, excluding entirely from the dietary all vegetables and fruits and such other articles as tend to produce accumu-

lations in the bowels. The object of this treatment by purgation and restricted diet is to guarantee that the bowels be as empty as possible when the operation is performed, which condition in addition to facilitating operation conduces to easy convalescence. During these three days of preparation the patient should receive as much attention as possible from the nurse, not being left alone, so that her courage and confidence may be increased by the reassuring presence of the nurse. Visitors should be as far as possible excluded, so that the patient may be quiet and obtain sleep and rest. It is, as a rule, best not to indicate the exact day and hour of operation to the patient, so that no fixed time will be set in the patient's mind to look forward to. If the patient is in an enfeebled condition it may be necessary to give much longer time to preparation for operation. By appropriate feeding, rest in bed, baths, and purgation, the general condition may be improved. The operation should not be performed, except in cases of urgency, at or immediately before the menstrual period. The nurse should look to this latter point, and inform the surgeon when necessary.

On the morning of the day of operation no purgative should be administered to the patient, as the bowels will have been already thoroughly

emptied, and had best not be disturbed. As a rule the bowels will move of themselves before the hour appointed, and if there is slight disposition for movement an enema of warm water and glycerine may be given. The patient is informed that this is the day for operation when she is told that she will have no breakfast. She should have a very thorough bath administered by the nurse, and put on fresh, clean clothing. A vaginal douche should be given, and the external parts scrubbed with soap and brush. The patient should have on a pair of warm stockings preparatory to every operation; also a light merino undershirt, with a gown over all. The blanket when applied to the lower limbs in a manner to be described will complete the means for preserving the body heat. In operations within and adjacent to the vagina, where it will be necessary to separate the lower limbs, each limb should be wrapped separately. In these latter operations it will be best to provide the patient with merino drawers, and pin a doubled sheet around each limb. Twenty minutes before the hour appointed for operation the nurse should see that the bladder is emptied, using the catheter if necessary. For abdominal section the feet and lower limbs should be enveloped in a warm blanket, which should be brought up around the hips and secured by strong

pins. In addition to the very essential preservation of heat by the blanket, this arrangement prevents the patient from tossing the limbs about while taking the anesthetic. The nurse should learn if the patient wears a plate for artificial teeth, and if so remove it. As soon as this is done she should notify the surgeon that the patient is ready for the anesthetic. During the administration of the anesthetic the nurse in charge of the patient should remain at the bedside; indeed she should not leave the patient alone at any time after the preparations have been begun on the morning of the day of operation. If it becomes necessary that she go out of the room for any purpose, she should summon another nurse to fill her place during her absence.

The supervising nurse alone should have control and supervision of the operating-room, carrying the key to the same. She should direct and see personally that it is kept scrupulously clean, and preparatory to every operation should see that the room is of proper temperature, and that every detail of its arrangement is in order.

CHAPTER V.

THE OPERATION.

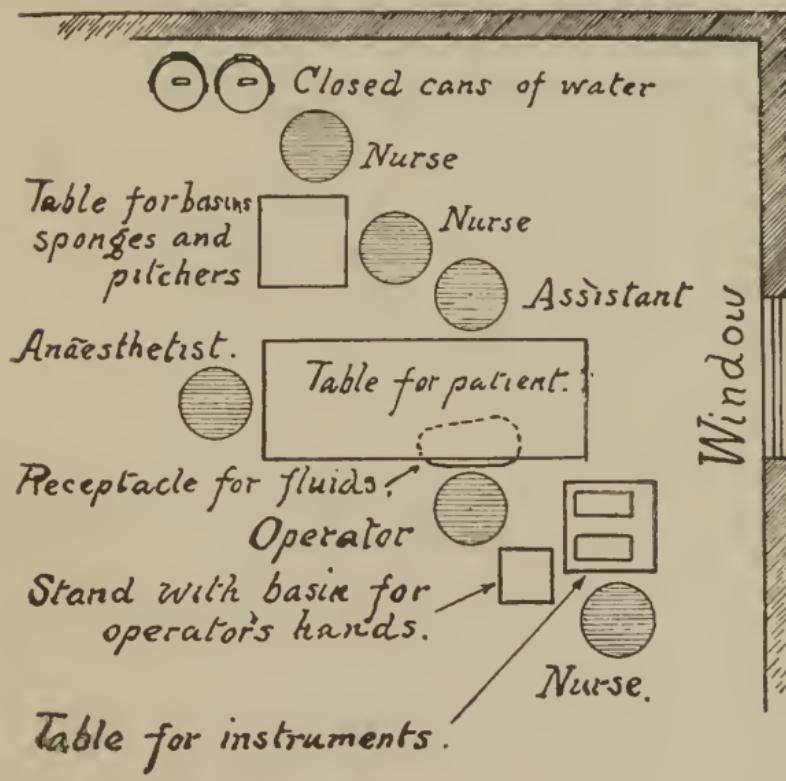
ON the morning of the day appointed for operation the supervising nurse should make her own toilet with special reference to operative work. She should have detailed the evening before, and personally notified, the nurses who are expected to take part in the operation. As a rule two nurses, besides the supervising nurse, will be required for gynaecological operations. All should make their toilet on the morning of the day of operation as an essential part of the preparations in cases of abdominal section. All should have a bath and entire change of clothing. The care of the hands is of special importance, and the nails should be taken care of by surgeons and nurses at all times with a view to using their hands in operative work. Indeed, the nurse, especially if engaged in surgical work, should cultivate in her daily life the habit and art of personal cleanliness, which alone enables one to regularly and uniformly protect those entrusted to her care from the disastrous effects of septic infection. On entering the operating-

room, and before doing any thing with the articles previously prepared for operation, the nails should be thoroughly cleansed and the hands thoroughly scrubbed with warm water; soap, and nail-brush. The sleeves should be rolled up so that the wrists and forearm may also be cleansed. After the hands have been prepared, the nurse must observe rigid caution in keeping away from all ordinary surfaces and objects, which, however clean in a general sense, may be the means of communicating septic infection to the patient. A towel should be used for opening doors, moving chairs, or doing any other necessary thing about the rooms; and the nurse should be careful not to touch her hair, rub her eyes, or in any way run the risk of contact with any infectious substance.

When the patient has been placed on the table, each one to take part in the operation should give their hands a rinsing with alcohol, and finally with warm water. Immediately after the patient has been placed on the table one of the nurses, previously indicated for the purpose, should arrange the patient's clothing; and finally cleanse the surface of the abdomen, if the operation be abdominal section. The gown and undershirt should be folded back and drawn above the shoulder-blades posteriorly and to the

breasts in front. The sleeves should be rolled up to the elbow, and the hands and forearms wrapped with clean towels. In this way the patient's clothing is protected. The abdomen is then given a final cleansing with soap and water and brush, and, last of all, wiped off with alcohol or ether. Dry towels are laid around the field of operation, covering for some distance above and below the patient's clothing, and over these wide strips of gauze wrung out of hot water are finally placed. The nurse should wash her hands after this preparatory to doing her part in the operation. Every nurse, as every assistant, participating in the operation should discharge her own duties without interfering with others, always looking to the supervising nurse for any directions or instructions that may be needed. The following diagram shows the proper position of table, operator, anesthetist, assistant, and nurses for abdominal section. The supervising nurse should stand immediately back and to the elbow of the principal assistant, and when a sponge is needed hand it to the assistant, and receive it again after it is used from the assistant. Sponges should not under any circumstances be handed to any other than the operator and principal assistant, and should not be allowed to lie on the table or in the vicinity of the field of opera-

tion. The path of sponges should be from the supervising nurse's hand into that of the principal assistant standing opposite the operator,



which admits it to the field of operation; whence it is returned by the assistant's hand again to the supervising nurse. Sponges should never be permitted to wander from this path. Many disasters from septic infection have occurred by

allowing the sponges to pass through many hands, or be laid upon the table, the patient, or elsewhere. Should instruments or sponges at any time fall upon the floor, they should invariably be left untouched until the operation is completed. In addition to the care of the sponges the supervising nurse should exercise in a general way a supervision of the operating-room, and *quietly* give any needed directions to the other nurses engaged in the operation.

Another nurse should hold a position just behind the elbow of the operator, and keep always ready for his use a basin of pure warm water. This is very important, to enable him at any time to quickly rinse his hands to remove any septic fluid, or to free his fingers of blood and clots which interfere with his manipulation. She will also when necessary assist the operator by handing instruments, ligatures, and sutures when the operator's hands are engaged in the field of operation. The third nurse should devote her attention to aiding the supervising nurse in handling the water used in the operation. She will pour it as required from the large vessels, in which it was brought into the room, into the basins containing the sponges. When irrigation is called for by the operator, she will aid the supervising nurse in pouring the water into the irrigator from the pitchers provided for that purpose.

Throughout the entire operation the nurses, like the operator and assistants, should concentrate all attention upon their respective duties. For this reason conversation and remarks upon extraneous affairs should not be indulged during the course of an operation. The nurses should bear in mind that the supervising nurse holds her position on account of demonstrated proficiency and ripe experience in the discharge of her duties; hence they should look to her for directions at all times, and when emergencies arise, or at a loss to know just what to do, receive instructions from her. In the discharge of every duty the nurses should aim to do prompt and deliberate work, avoiding hurry and haste, but moving with expedition and promptness. Each nurse should have a clear idea of her duties, and discharge them steadfastly without undertaking the duties belonging to another. At the same time, when emergencies arise and the operator is dealing with exceptional difficulties, she should be alert to do quickly and efficiently any thing that she may be called upon to do. On such occasions it is very essential to suppress alarm and exercise the greatest self-control, following implicitly all directions given without excitement or confusion. No one of the nurses engaged in an operation should ever leave the room during the operation except by explicit direction of the operator.

In all gynaecological operations, especially abdominal section, every one participating in the operation should work with deliberate rapidity—that is as rapidly as is consistent with care, method, and thoroughness. The longer the operation the more protracted must be the anaesthesia, and this of itself is a potent factor of shock following operations. Every effort to promote expedition and economize time should be made from start to finish; and this is best accomplished by avoiding that haste which makes confusion.

In the gynaecological operations other than abdominal sections two nurses besides the supervising nurse will be required, and the same principles outlined for abdominal sections will be observed. In plastic operations and minor operations the patient should be placed on the table in the dorsal or semi-prone position, as may be indicated by the surgeon. No operation or manipulation, even though it be of minor character, like restoration of a displaced uterus, introduction of a pessary, or application to uterine cervix, should be performed without lifting the patient on to the firm surface of a table, which alone enables the surgeon to work in a thoroughly surgical and efficient manner. In the dorsal position two nurses will hold the

patient's limbs in the absence of special apparatus for that purpose, while the supervising nurse cares for water and sponges. In the semi-prone position one nurse will be required to hold back the perineum with the Sims speculum, which, to be done properly, requires observation of this duty in another's hands first, and practice afterward. The nurse should learn to hold this

instrument while standing erect, otherwise the constrained position will tire her beyond endurance in protracted operations. By standing close to the edge of the table and near its foot, she can learn to hold the instrument steadily and at the same

time stand erect. While holding the speculum with one hand she should retract the parts above, thereby facilitating the operator's access to the field of operation. She should stand on the left side of the patient, allow the left arm to rest lightly on the patient's hip, and with the left hand separate the buttocks near the vaginal opening; with the right hand she should grasp the speculum and hold it firmly and steadily. The speculum should be placed in warm water and lightly oiled with vaseline before it is placed in the vagina.



CHAPTER VI.

AFTER OPERATION.

WHEN the patient is placed in bed after operation, the nurse should be present to take charge. From this time until convalescence is established (usually the latter part of the third day) the patient should never for a moment be left alone. When the anesthetist leaves, the nurse should take a seat beside the bed and remain until the patient has recovered from the anesthetic. If the patient vomits, she should see that a towel is placed under the chin, and turn the head on the side so as to prevent vomited matter from getting into the windpipe. The patient's hands should be restrained from touching and displacing the dressings.

The immediate danger after operation is from shock, and the first indication is to bring about reaction and restore the equilibrium of the circulation. For this purpose artificial warmth is applied to the surface and extremities of the patient. This is best accomplished by warming the bed thoroughly by means of rubber bags, or bottles, or metallic heaters (the latter being pref-

erable) filled with hot water. These should be placed in the bed beneath the bed-clothing, and allowed to remain during the operation, so that the bed will be thoroughly warmed when the patient is replaced in the bed. The heaters (or bags, or bottles) should be removed from the bed immediately before the patient is replaced therein. This precaution is necessary to prevent burning the patient while still under the influence of the anesthetic, an accident quite common and productive of great pain and annoyance, and only to be prevented by the thoughtful care of the nurse. So common is this accident that it should be the rule to remove the heaters from the bed as soon as the patient is brought from the operating-table. It is only in exceptional cases of pronounced shock that it is necessary to retain the heated articles in bed and about the patient's body, and then the nurse should carefully guard the patient from being burned as long as anesthesia is maintained. These precautions are an important part of the nurse's duties. Reaction is indicated by the pulse becoming stronger and the skin becoming moist and warm. The blanket should then be removed from around the lower limbs.

When the circulation is restored, and for the first twelve hours after operation, hemorrhage is

a danger to be kept constantly in mind. Such an accident will be indicated by the pulse, and in cases of abdominal section in which a drainage-tube is used the excessive flow of blood through the tube will signalize hemorrhage. A rapidly increasing, quick pulse, with pallor and faintness coming on suddenly during the first twenty-four hours, indicates hemorrhage. These symptoms should be recognized in their serious import by the nurse, and promptly reported to the supervising nurse and surgeon.

The nurse should familiarize herself with the pulse, remembering that the pulse is the only trustworthy guide to the patient's progress after abdominal section. The temperature is not so important, since virulent peritonitis may exist with a normal temperature. Whenever the patient's pulse rises over 100 the supervising nurse should be informed, and when it reaches 120 the surgeon should be immediately notified by telephone or messenger.

Six hours after operation, if the bladder does not act by the patient's control, the nurse should use the catheter. Many patients do not require the use of the catheter at all. The utmost care of the catheter is necessary to avoid inflicting cystitis upon the patient. The catheter should be thoroughly cleansed in hot water before being

used, and each time after its use it should be washed thoroughly and placed in a carbolic-acid solution, there to remain until used again. If a soft rubber catheter is used, a new one should be supplied for each patient. Catheters of glass or silver are excellent, since they can be cleaned in boiling water. The utmost care and gentleness should be observed in the introduction of the catheter. Each time the catheter is introduced the nurse should expose the parts in order to avoid contaminating the catheter. The patient's knees should be drawn up, and the folds separated with the fingers of the left hand so as to expose to view the opening of the urethra. The parts should be carefully cleansed with a pledge of cotton wet with carbolic-acid solution. The point of the catheter should then be inserted directly into the urethra without touching the parts around. The bladder should be emptied every six hours until the patient can pass urine without the aid of the catheter, which she should be encouraged to do. Accurate observation should be made as to the quantity of urine passed during the first twenty-four hours in cases of abdominal section, as it is of importance in relation to the patient's progress. After the removal of large tumors, the patient may be unable to empty the bladder thoroughly on account of impaired

power of the abdominal muscles. In such cases, though often passing small quantities of urine, the bladder is never quite emptied and cystitis will follow. In such cases the catheter should be used regularly every six hours.

During the first twelve hours the patient should be urged to remain quite still on her back with limbs extended. This position, quietly maintained, is conducive to the processes of repair. After the first day the patient may be shifted to a fresh surface of the bed, and have the knees bent over a pillow, which materially promotes her comfort. The following directions by Mr. Greig Smith are appropriate and valuable:

"A golden rule in the treatment of cases of abdominal section is—to let the patient alone. Every thing approaching to meddlesomeness is to be condemned. The patient must not be upset by fussy applications of tentative therapeutics; when an emergency arises, it is to be met promptly and decisively by a method which has been approved trustworthy.

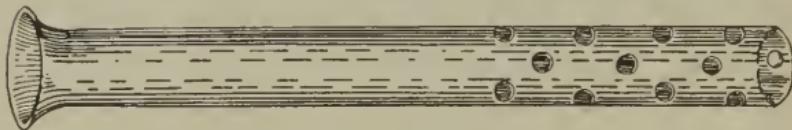
"Comfort may be regarded as a therapeutic measure of some importance. Besides the ordinary measures that would be adopted with a patient who is seriously ill, certain minor attentions in abdominal cases may be carried out with benefit. The luxury of a change into a second

bed, with clean, fresh linen, will be highly appreciated, and will often be a means of securing a good night's rest. Changes of position—moving the patient from back to side, raising the head and shoulders a little, bending the knees over pillows, or raising the lower limbs on supports—all tend to lessen the irksomeness of confinement to bed, and by so much to increase the chances of recovery. Sponging the arms, legs, and chest, or washing them with soap and warm water, will always be grateful. These and similar proceedings are well worthy of consideration, as being items in the not inconsiderable total of the patient's comfort."

Morphine should never be administered except by the surgeon's direction, and every moral influence should be constantly exerted by the nurse to induce the patient to endure moderate discomfort rather than resort to opiates. By sponging the palms of the hands with cold water, changing the pillow, and gently shifting the patient, her comfort can be very materially subserved. With the aid of such means, together with encouraging words and assuring manner, the use of opium can usually be avoided, and thereby the patient's convalescence will be more prompt and more comfortable. The use of opium after surgical operations is pernicious

in its effects, and should be avoided if possible. It gives temporary ease and rest, but it locks up the secretions, blunts the nerve centers, and begets nausea, vomiting, and accumulation of gas in the intestines. In cases wherein the patient has in consequence of prolonged suffering become addicted to the daily use of this drug, and in very nervous, and with frail persons, it may be impracticable and injudicious to altogether withhold it from them. These cases are, however, exceptional, and in the general course of operations for pelvic diseases it is best to discard opium altogether from the after-treatment. The patient suffers less in the aggregate, and convalescence is more prompt and bright, and recovery quicker and complete.

In a large proportion of cases of abdominal section for diseases of the pelvic organs, drainage



by means of a glass drainage-tube will be necessary. The care and management of the tube will devolve upon the nurse. It is seldom that it will be necessary to keep the tube in longer

than seventy-two hours; more frequently it will be removed at the end of forty-eight hours. When properly adjusted the tube occupies the lower angle of the incision with its distal end resting in Douglas' space, the most dependent portion of the abdominal cavity, into which all fluids gravitate while the patient is lying on the back. The frequency with which the tube should be emptied is determined by the amount of drainage; it should not be allowed to overflow on the dressings. Immediately after the patient is placed in bed it will usually be necessary to empty the tube every fifteen minutes or every half hour. This is done by using a hard rubber syringe with long, small nozzle, introducing it gently to the very bottom of the tube and



by suction removing all fluid. A glass piston-syringe can be used by attaching a piece of rubber tubing to the nozzle. In using it the tubing is allowed to slip down into the glass drainage-tube. The hard rubber syringe mentioned, known to manufacturers as the uterine syringe, is preferable. When going to empty the tube the contents of the tube itself should be first

sucked out with the syringe, afterward introducing the nozzle to the bottom of the tube and sucking out all the fluid within and about the dependent point of the tube. This should be done very gently, introducing the syringe slowly, gently holding the tube in position when drawing out the piston of the syringe in order not to displace the tube. The tube can be held in position best while emptying it by placing one finger on it and holding it gently and firmly in position. After emptying the tube, the nurse with two fingers should gently rotate the tube a slight degree, elevating it slightly at the same time, in order to be sure that it is free in the cavity. Very little force should be used in this maneuver. The basin to receive the fluid removed from the tube should be thoroughly cleansed every time the tube is emptied, and when the syringe is not in use it should be kept in a pitcher of pure water covered with a towel, always cleansing it thoroughly with water after using it. Preparatory to using the tube the nurse should always wash her hands carefully, place a clean towel around the mouth of the tube, and observe all the rules of surgical cleanliness. In preparing to empty the tube the nurse should arrange the covering over the patient's chest and lower limbs so that only the portion

of the abdomen where the tube rests shall be exposed. This can best be done by having two blankets adjusted so as to come together over the abdomen. This should be done before preparing her hands to empty the tube. As the accumulating fluid grows less, the intervals may be lengthened, so that after the first few hours it will suffice to empty the tube every hour, gradually lengthening the interval to two or three hours. The external end of the tube must be kept covered with a pledge of absorbent cotton, enclosed in a piece of rubber dam which is snugly secured with a safety-pin. The cotton should be renewed whenever soiled by the drainage fluids. It is often desirable to save the fluids removed from the tube for the surgeon's observation; in such cases the fluid may be placed in vials labeled with the hours it was removed from the tube.

When the drainage has been reduced to one or two drachms at intervals of two hours the tube may be safely removed. This is done by loosening the bandage and other dressings, covering the opening of the tube with one finger so as to retain any fluid standing in the tube, and gently drawing it out of the abdomen. As a rule it will be necessary to change the gauze dressings, which are usually soiled by fluid rising along the exter-

nal surface of the tube. It will also be best to dust over the incision and adjacent cutaneous surfaces, particularly around the lower angle of the incision, with iodoform. No water or anti-septic fluid, or moist dressings of any kind, should be used. The incision will do best when dressed dry. In many cases where the drainage has been profuse it will be best to replace the glass tube with a smaller soft rubber tube for from twenty-four to seventy-two hours. This can be done by passing a piece of soft rubber tubing, which has been thoroughly cleansed and having perforations around its distal end, into the lumen of the glass tube. The rubber tube, of course, should be smaller than the glass tube that it may pass to the bottom of the drainage tract. After being passed it is held in position with one hand while the other hand lifts the glass tube out, leaving the rubber tube in its place. This should be secured to the dressings with a safety-pin so as to hold it in its place. The end of the tube outside should be covered with aseptic gauze. This supplementary rubber tube will drain away any remaining fluid, and often prevent trouble which follows retention of septic fluid at the bottom of the drainage tract. This tube can be removed gradually, drawing it up a bit morning and evening, and cutting it off an inch or so. In this way

the drainage tract will be emptied and allowed to heal from the bottom. When it has been in this way by degrees shortened until the distal end approaches the abdominal muscles in front the remaining part can be withdrawn. The rubber tube can usually be removed at the end of forty-eight hours.

Another mode of drainage frequently used is by means of gauze passed through the incision down to the bottom of the pelvic cavity. This method of drainage should be restricted to cases in which it is necessary to arrest hemorrhage by packing gauze upon bleeding surfaces inside the abdomen. The drainage is accomplished by capillarity, maintaining a constant seepage of fluid along the meshes of the gauze. To maintain this method of drainage it is necessary to frequently renew the gauze. After being in the wound twenty-four hours it becomes firmly adherent by reason of the fibrine entangled in its meshes. It will require considerable force to remove it. It should be firmly and steadily withdrawn, and fresh gauze must be inserted if necessary to maintain drainage. This difficulty can be materially lessened by preparing a gauze bag and placing inside several long strips of gauze with the ends protruding externally. When the strips are removed the bag will collapse and be

more easily withdrawn. Gauze drainage is inferior to tube drainage, since the gauze does not remove thick fluids and *débris* like the tube. When it is necessary to pack and drain suppurating cavities iodoform gauze is used.

Nausea and vomiting very uniformly follow the taking of ether or chloroform. It comes on as the anesthetic is being thrown off from the system. To keep the head low and apply cloths wrung out of cold water to the head is about all that can be done. For the first twenty-four hours it is best to administer nothing whatever by the stomach. If the patient complains of thirst, small draughts of hot water may be given —a tablespoonful every half hour. At the end of twenty-four hours cold water will usually be borne by the stomach and will be welcomed by the patient. Small draughts every half hour or hour should be the rule.

On the third day (measured in hours from the time the operation was completed) the bowels should be moved by a saline purgative (sulphate of magnesia, Rochelle salts, or Hunjadi water), aided by an enema of warm water.

The utmost care of the patient should be observed while using the bed-pan, avoiding straining and overexertion of every kind. Another attendant should aid the nurse in raising the

patient's hips and slipping the bed-pan under and in removing it.

When the bowels have moved thoroughly systematic feeding should be inaugurated. At first small quantities of barley water or toast water may be given, followed by clear chicken soup or broth; or, as in most cases, the broth may be given from the first. Little and often should be the rule; a few spoonful at first, to be repeated in an hour or so, and the quantity gradually increased. Milk is not a proper food for patients after abdominal section. It is not digested by the stomach, but passes, as curd, into the intestines and causes accumulation of gas. On the fourth day rice may be added to the chicken broth, which is then given in larger quantity; and on the fifth day a soft-boiled egg, tea, and toast, or boiled meat, may be added to the dietary. After the sixth day the patient usually resumes the regular house diet.

It is very common for patients to suffer with flatulence after abdominal section. Oftentimes this gives the patient much discomfort and prevents rest and sleep. For the relief of this condition a rectal injection should be administered, and repeated as often as may be necessary. A simple enema of warm water, containing two tablespoonsful of glycerine to a quart, will usually

be followed by escape of gas and relief; or it may be necessary to stimulate the bowel by adding one or two tablespoonsful of turpentine to the enema. This will usually be effective. Some surgeons practice the introduction of the rectal tube for this purpose, but it is troublesome and often painful, and less efficient than turpentine enemata.

During the entire convalescence of the patient the bowels should be kept in a soluble condition by means of purgatives and enemata. It sometimes happens that patients will not retain a saline purgative, the fluid being thrown up by reason of its bulk. Under these circumstances it is best to substitute small doses of calomel—one grain dropped on the tongue and repeated every hour until effective.

On the third day after ovariotomy and other similar operations involving the ovaries a metrostaxis resembling the normal menstrual flow will come on. Its appearance is usually accompanied with relief of nervous symptoms. The nurse should be prepared for its advent and assure the patient of its innocent significance.

On the seventh or eighth day the sutures will be removed by the surgeon from the abdominal incision. This is done by raising each suture gently with forceps, clipping it close to the skin,

and by traction withdrawing it from the tissues. After the sutures are removed the incision should be dusted over with iodoform, fresh gauze placed, and the bandage reapplied. No water should be used with a view of cleansing the incision. In ordinary cases the patient can be allowed to assume the semi-recumbent position in bed after the tenth day, and sit up at the end of two weeks. After hysterectomy or other operations requiring unusually long incision the patient should remain in bed at least three weeks. A bandage should be worn all the time, and replaced with an Empire abdominal supporter when the patient gets up and begins going about. These precautions are necessary to prevent rupture through the abdominal muscles (ventral hernia).

The above directions are intended to apply to the after-treatment of cases of abdominal section. The after-treatment of the other operations in gynaecological surgery is comparatively simple, though involving the general principles already laid down. After operations upon the vagina and neck of the uterus, upon the perineum and bladder, and after vaginal hysterectomy for cancer the nurse must guard the important question of hemorrhage and maintain systematic cleanliness of the parts involved. During convalescence from all these operations the vaginal

douche must be used twice daily, and the parts carefully protected from contamination. In using the syringe after operations for ruptured perineum care must be observed not to interfere with the stitches. This can be done by carrying the nozzle of the syringe well forward along the anterior wall of the vagina. After the douche the external parts should be carefully dried with a piece of absorbent gauze and boric acid dusted over. For douching the vagina a fountain syringe is preferable. By placing the bed-pan well under the patient it can be used efficiently.

After all these operations the bowels should be kept soluble, and the catheter dispensed with as soon as possible. Here, as elsewhere, the most painstaking cleanliness is essential to good results.

CHAPTER VII.

COMPLICATIONS.

THE directions given in the preceding chapters are applicable in cases of straight-forward, uncomplicated convalescence after gynæcological operations, and the majority of cases proceed in this satisfactory manner. In skilled hands, when the operative work is done with precision in a finished surgical way, the average case pursues an uneventful course, passing smoothly into convalescence, and the directions already given will be an ample guide for the nurse in managing her share of the after-treatment. But there are complications which are liable to arise even in simple cases, and, although this is exceptional, it throws great responsibility upon both nurse and surgeon. This fact should never be lost sight of, and every simple case should be nursed with full appreciation of the same. Again, there are difficult and severe cases as well as cases of emergency, wherein we must expect the patient to pass through a severe illness before reaching safe convalescence. It is in these cases that the skill of the nurse counts for so much, and

wherein the greatest triumphs of surgery are scored.

Shock. In severe cases of abdominal section, wherein operations are prolonged and difficult, there may be profound shock following operation, and the simple measures already described for restoring the equilibrium of the circulation will not suffice. With feeble patients and those whose strength has been impaired by protracted illness, suppuration, or hemorrhage, more vigorous measures will be needed to bring about reaction. In addition to those means heretofore described, active measures of stimulation may be necessary to prevent collapse and immediate death. In addition to the application of dry heat, the lower limbs must be elevated, and stimulating enemata (brandy or whisky diluted with warm water) and hypodermic injections of appropriate remedies must be administered. In giving enemata the fluid should be injected very slowly into the rectum, being careful to have it comfortably warm, and when the nozzle of the syringe is withdrawn a folded napkin should be firmly and steadily pressed against the bowel for fifteen minutes to facilitate retention. There is in these cases constant disposition on the part of all about the patient to do too much. Every thing should be done in a prompt and orderly manner. For

immediate stimulation in threatened collapse nitro-glycerine hypodermically administered is a valuable remedy. Hypodermic tablets are prepared for the purpose, and should always be at hand to be administered under the surgeon's direction. The effect of this remedy is quick and transient, and is not suitable for prolonged stimulation of the heart's action. It is to be used for quick effect only. When it is necessary to stimulate the heart's action in the character of cases under consideration for a prolonged time a combination of digitalin and strychnia will be found most efficient. The author has frequently used with pronounced benefit hypodermic tablets combining these two agents, prepared by J. A. Flexner, of this city. Each tablet consists of digitalin verum (Boehringer's), $\frac{1}{250}$ grain, and nitrate of strychnia, $\frac{1}{125}$ grain. No attempt should be made to administer stimulants by the stomach. Where there has been severe hemorrhage, in addition to elevating the foot of the bed, it may be necessary to bandage the lower limbs in order to increase the circulating volume of blood.

The frequency with which remedies are to be administered, as well as the dose, must depend upon the judgment of the surgeon, and the nurse should proceed with her work under his instruc-

tions. As already stated, the tendency is to overdo the efforts at bringing about reaction. These means should be utilized carefully and systematically, and time allowed to see the effects produced, further measures being determined accordingly. The nurse must not forget the precautions already indicated to avoid burning the patient by hot cans or bottles.

Hemorrhage. During the first twenty-four hours after abdominal section, even in simple cases of removal of the appendages or ovariotomy, the nurse should be alert to detect the first symptoms of hemorrhage. If such an accident occurs it will surely be during the first twenty-four hours after operation. The most reliable as well as the earliest symptom of hemorrhage is a rising pulse. For this reason careful observations of the pulse should be made and recorded every hour after the patient leaves the operating-table for the first twenty-four hours. The bleeding which comes from torn adhesions is usually a free oozing and rarely affects the pulse; serious hemorrhage is caused by slipping of the ligature which has been placed around the pedicle to secure the large blood-vessels.

When a glass drainage-tube has been used it will usually indicate that bleeding is going on by a free flow of blood through the tube.

This symptom, however, can not be relied upon, for oft-times, when only a moderate quantity of blood can be drawn through the tube, the abdomen may be filled with clots. A rapid pulse, growing faster and smaller, pallor and rapid respiration, faintness and lassitude, with growing indifference to surroundings, coming on during the time indicated, are infallible signs of hemorrhage within the abdomen. For the free oozing following torn adhesions and bleeding surfaces the only treatment necessary is frequent and thorough emptying of the tube with the syringe. The oftener the tube is emptied and the drier the pelvic cavity is kept the sooner will the hemorrhage cease. The nurse will carefully empty the tube every fifteen minutes under these circumstances. When the hemorrhage comes from a slipped ligature, with large vessels pouring blood out into the abdominal cavity, there is but one treatment, and every thing depends upon resorting to it promptly and decisively. That treatment is to reopen the abdomen and secure the bleeding vessel or vessels. Hence the nurse should be alert for the first twenty-four hours after abdominal section; the patient should never be left alone, and upon the first indications of active hemorrhage the surgeon should be summoned. When he arrives every thing should be

in readiness for operative interference. The instruments for opening the abdomen should be prepared carefully, and every aseptic precaution observed the same as in the original operation. If done promptly and in a careful manner the hemorrhage is completely arrested and the patient goes on into convalescence. Time is the important feature in this procedure. The signal of danger must come from the nurse, and every thing depends upon the alarm being given early. After abdominal hysterectomy, when the pedicle is secured with a *serre-nœud*, the nurse should watch the dressing carefully at the lower angle of the incision to detect bleeding. Should bleeding occur, it will be her duty to tighten the wire by turning the constrictor. The mechanism is very simple, and the surgeon can readily show her when the operation is completed how it is managed. After vaginal hysterectomy it is important to watch every hour for excessive bleeding from the vagina. When detected, the surgeon should be notified immediately. After operations upon the neck of the uterus serious bleeding may supervene. In these cases the constitutional symptoms described above do not come on quickly, and the bleeding is not furious, but consists of a persistent oozing of bright blood from the vagina. Such hemorrhages should like-

wise be promptly reported, and if persistent will require attention from the surgeon.

Peritonitis. When peritonitis follows abdominal section it is due to septic infection. In many abdominal sections active peritonitis exists at the time of operation. Thorough removal of the diseased structures, with thorough cleansing of the peritoneum, will usually arrest the inflammatory process immediately. When, however, some focus of infection remains peritonitis may persist. Should the infection be limited to a small surface, it may subside by resolution, and even if matter be formed it may be shut off from the general peritoneum, and after a time discharge itself along the drainage tract or by rupture into the vagina, rectum, or bladder. A general pelvic and abdominal septic peritonitis is never cured; the patient is sure to succumb. When the infection (poisoning) has spread throughout the peritoneum the entire system is so impregnated with the poison that recovery is impossible. In this condition, as in hemorrhage, efforts for rescuing the patient must be instituted at the inception of the process, and these efforts consist in reopening the abdomen, thoroughly washing out the peritoneum, and establishing drainage. This is seldom successful, however, for under the most careful observation the condition of the patient

is doubtful, so insidious is the process of infection. The symptoms of septic peritonitis after abdominal section appear from the second to the fourth day, as a rule, and are first indicated by rising pulse, growing more rapid until it becomes small and feeble. Sometimes the patient never appears well after the anesthetic is eliminated, and gradually grows worse. Usually, however, the condition of the patient for the first twenty-four hours after the operation is fairly good with the exception, perhaps, of a rapid pulse. The temperature is apt to be slightly elevated, being 100° or 102° . The temperature may not be elevated beyond the normal point. Indeed the temperature is of comparatively little value as a guide to the condition of the patient after abdominal section. In the worst cases of general septic peritonitis the temperature may remain normal throughout. Vomiting occurs, with nausea, and distension of the abdomen comes on. The features begin to be pinched, the patient is in great pain and distress, and the countenance assumes a dusky hue. The patient is very ill. Mr. Greig Smith says: "The trinity of peritonitis, tympanites, and vomiting are the furies of abdominal surgery." In the early inception of this condition the patient may be rescued by purgation, and energetic measures

should be instituted to move the bowels. If the patient is nauseated, calomel must be administered in one- or two-grain doses every hour, dropping it on the tongue; and enemata of turpentine (as previously directed) should be given. The management of the case, especially the effective use of enemata, will tax the highest skill of the nurse. The patient should be placed in a favorable position, preferably upon the left side, and the fluid thrown high up in the lower bowel. It will be necessary to use the rectal tube so as to throw the injected fluid high up in the large intestine. If effective and active purgation is established, the symptoms which were so ominous for several hours before may subside. As soon as the stomach is quiet a saline purgative (Rochelle salts) must be given so as to establish active and persistent catharsis. The salutary effect of this treatment consists in establishing an artificial diarrhoea, which drains the peritoneum, thereby removing the infection. If calomel administered by the mouth and high stimulating enemata fail to move the bowels, the only resource left is to reopen the abdomen and irrigate and drain the peritoneum. This, of course, necessitates the essential preparations for abdominal section.

The obstacle to the successful treatment of

post-operative peritonitis lies in the fact that the patient's sufferings are so great that morphia becomes a necessity, and this prevents the action of purgative measures. Moreover, the insidious extension of the poison throughout the infected peritoneum, together with the use of opiates, prevents a thorough appreciation of the grave condition of the patient; and when reopening the abdomen is done it is seldom effectual. As already stated, when the general peritoneum is infected throughout, the patient is incurable and will surely die. Fortunately, under the rigid precautions of surgical cleanliness established by modern surgery, this condition is comparatively rare.

Intestinal Obstruction. This is a rare complication after abdominal section. The intestines may from various causes be obstructed, the most common cause being due to constriction by adhesions. This condition may occur early or late after operation. It is often simulated by distension of the bowels with gas, a condition usually promptly relieved by stimulating enemata thrown high up the large intestine. Several quarts of fluid may often be necessary before succeeding in establishing the normal movements of the bowel. When the obstruction is caused by adhesions it will be necessary to reopen the abdomen

and release the imprisoned bowel. The nurse should be careful in all cases of abdominal section to report daily to the surgeon whether or not the bowels have moved thoroughly. Her duties in connection with obstruction relate to the use of enemata, which will be directed by the surgeon.

Cystitis. It is very common after abdominal section to find that the patient is unable to pass her urine. This is not invariably the case, however, since in the majority of cases, excepting after the removal of large tumors, the patient will be able to empty her bladder without the aid of the catheter. The effort to do so should always be invited, and she should be urged to make the attempt. Very nervous patients will usually require the use of the catheter. It is a reproach to the medical profession, and likewise to nurses, that in the majority of instances in which the catheter is used cystitis is inflicted upon the patient by want of care of this instrument. When a catheter is used without being thoroughly cleansed and rendered antiseptic, and when its repeated use is required, if not kept antiseptic the patient is sure to have cystitis. This can be prevented by washing the catheter carefully before using it, and immersing it in a solution of carbolic acid or bichloride of mercury of

the strength already indicated in these pages. It should never be used without fully exposing the parts, so that it can be passed into the urethra without traversing the adjacent mucous membrane. The parts about the opening of the urethra should be thoroughly cleansed with a piece of cotton wet with carbolic-acid solution before the catheter is introduced. Careful attention to these details is the only way to prevent infection of the bladder.

If during the operation the bladder has been injured without opening it, or if from distension by large tumors the abdominal muscles can not aid in emptying it, small quantities of urine may be passed without ever thoroughly emptying the bladder. Under these circumstances the patient will have cystitis from retention, which is only to be prevented by the regular use of the catheter. For this reason, as well as for reasons previously given in this volume, the nurse should note carefully the quantity of urine passed during the twenty-four hours after abdominal section. A soft rubber catheter is preferable, and a new one should be used with every case, and kept in an antiseptic solution when not in use.

If cystitis develops the surgeon should be notified, so that he can prescribe an appropriate remedy to correct the acidity and dilute the urine.

At the same time it will be necessary for the bladder to be thoroughly irrigated with a solution of boric acid. The surgeon will adapt the strength of the solution to the grade of inflammation. The bladder is washed out by means of a soft rubber catheter and a fountain syringe. The nurse introduces the catheter, and, after emptying the bladder, attaches the tube of the syringe to the catheter and holds the fountain above the patient so as to allow the fluid to be forced by gravity into the bladder. The solution should be comfortably warm. This will relieve pain and irritation, and will be repeated at such intervals as the surgeon directs.

Stitch Abscess. Abscess may occur along the line of sutures by which the incision in the abdomen is closed in the operation of abdominal section for any condition. When the dressings are adjusted after the operation is completed, they should be disturbed as seldom as possible, in order to avoid unnecessary exposure of the incision. Every few hours, after the patient is placed in bed, the nurse should see that the dressings are snugly in place, and always after using the bed-pan, or after any movement of the patient, be careful to adjust the bandage and retain the dressings in place. When the patient complains of pain and burning about the incis-

ion, the nurse should, with clean hands, undo the dressings and examine the incision. The formation of a stitch abscess will be indicated by redness at the edges of the incision and about one of the stitches. This should be reported to the surgeon. Stitch abscesses are caused most frequently by unclean suture material, and will rarely occur when the sutures are carefully sterilized and kept in alcohol. In some instances abscesses are caused by tying the stitches too tightly. When abscess occurs the suture should be removed, the abscess carefully evacuated by gentle pressure around its edge, and a piece of dry lint or gauze strapped over it with adhesive strips.

Fistulæ. When, in abdominal section for the removal of tumors within the pelvis, heavy ligatures are used, the ligatures imperfectly sterilized, a small abscess may form around the ligature and discharge into the vagina, or bowel, or along the tract occupied by the drainage-tube through the abdominal wall. The fistula thus formed will keep open until the ligature is discharged, when without any treatment it will close.

It occurs sometimes in difficult operations involving the bladder that the walls of the bladder are torn through. The surgeon may not know it at the time, and may fail to repair it.

The injury will manifest itself by a discharge of urine through the drainage-tube. In the course of vaginal hysterectomy one or both ureters may be injured, and urine will pass into the vagina through the incision in its roof. This condition is known as urinary fistula, and requires surgical treatment. Often in the course of abdominal section the bowels are injured, and the contents of the bowel escape and discharge externally. This is known as fecal fistula.

The formation of either urinary or fecal fistula brings a great deal of work to the nurse. She has to exercise the greatest care in changing the dressings as often as may be necessary to prevent contaminating the adjacent portions of the wound in so far as is possible.

Hernia. This is more a sequel than a complication of abdominal section, and is due to a failure of union between the cut edges of the structures forming the abdominal walls. Usually it does not occur until some weeks after the patient has gotten up and resumes her occupation. It is to prevent such an accident that the nurse must keep the patient in bed, and warn her against all kinds of exertion a sufficient time to allow the abdominal muscles to become firmly united by the healing process. It is also to prevent this accident that the nurse is con-

stantly urged by the surgeon to keep the bandage snugly adjusted about the abdomen long after the incision has been healed. It is also for the same reason that the surgeon advises the patient to wear an abdominal supporter for several months after she is discharged from his care.

This accident is treated in two ways. The patient may be made comfortable by wearing a proper supporter or truss. For complete cure an operation is necessary.

Minor and Plastic Operations. The after-treatment of this class of operations has already been treated in these pages, and is based upon the application of the same surgical principles as observed in abdominal sections. After these operations complications are not so common, and the dangers not so great.

In operations upon the neck of the uterus, where the dissection is carried near to the peritoneum and amid structures communicating through the lymphatic system with the peritoneum, the same thorough-going methods of surgical cleanliness must be observed as in abdominal sections. Hemorrhage is a complication liable to supervene after this operation, and will be indicated by persistent and copious flow of blood from the vagina. Peritonitis also

may be the penalty of imperfect efforts at asepsis in these operations.

The same may be said of the operation of curetttement, which necessitates scrupulous surgical cleanliness and careful use of the vaginal douche before and after the operation.

CHAPTER VIII.

OPERATIONS IN PRIVATE HOUSES.

GYNÆCOLOGICAL operations are often performed in private houses, and the duties of the nurse under such circumstances are more difficult and laborious than in a special hospital surrounded with all modern facilities for surgical work. At the same time all obstacles to thorough work can be overcome by some ingenuity and thoughtful care in preparation. Operations in private houses always increase the labor both of surgeon and nurse. Gynaecological operations upon nervous patients, particularly those who have become dependent upon occasional doses of morphine and other nervines, are always done at a disadvantage when the patient is perturbed by the constant expressions of sympathy and the appeal to the emotions excited by the environment of home and family. The technique of modern pelvic surgery is altogether unintelligible to the most intelligent class of the laity, who have not been instructed as to the scientific principles underlying it. Hence, many of the essential requirements for operating

are regarded as trivialties by the patient's family, and the painstaking precautions of the nurse may unintentionally be undone. This necessitates the utmost vigilance on the part of the nurse preparatory to, during, and after operation, and very materially adds to her labors. In a well-appointed hospital the nurse and surgeon are surrounded with co-workers thoroughly drilled in surgical methods, always ready to co-operate in an emergency or to relieve the nurse from duty for a time. In private houses the nurse can rely upon no helping hand save when it is under her own immediate direction and control. There is no lack of desire to aid nurse and surgeon in their work, but the minute aseptic precautions of modern surgery are not understood, and the results which may come from disregard of rigid rules are unappreciated.

Very frequently emergency operations have to be done in private houses; such an operation, for example, as abdominal section for extra-uterine pregnancy. The patient has suddenly been seized with violent pain and collapse, the result of ruptured blood-vessels deep within the pelvis. No time can be had for removing the patient or careful preparation for operation. In these cases surgeon and nurse are usually summoned upon a moment's notice, and the nurse

must exercise judicious ingenuity in order to provide all possible requisites for an aseptic operation. Under these circumstances a teakettle and boiler must be scoured out, filled with water, and placed on the stove as soon as possible after reaching the house. While the water is being heated, and the surgeon is unpacking his bag of instruments, the nurse should proceed with all possible expedition to scour out and scald two or three bowls or basins, hang a pair of blankets on a chair by the fire, get a dozen clean towels, and scour off the kitchen table and two smaller tables. Preparatory to doing this work the nurse should lay aside her clean apron and cuffs, so that they will be fresh and clean when the operation is begun.

When a gynæcological operation is to be done in a private house the nurse should be informed several days in advance, and should go to the house two days prior to the day of operation to make the acquaintance of the patient and institute preparations. The surgeon will have selected the room for operation, which will always be one with good light and convenient to the patient's bedroom. If the operation be abdominal section, two days before operating this room should be cleared of all carpets, hangings, pictures, and furniture; the walls brushed down,

and the floor and wood-work washed with hot water, and the room exposed a day and night to the air. This should be done under specific directions from either the surgeon or nurse; if the surgeon gives directions, the nurse should see that they are properly carried out. A table that will subserve the purpose of an operating-table should be selected; this will usually be the kitchen-table. It should be scrubbed thoroughly with hot water and soap, and two or three small tables for basins and instruments should also be selected and likewise cleaned. These, with two or three plain chairs, are all the furniture necessary for the room.

The following articles will have been ordered by the surgeon, and the nurse should see that they are delivered at the house a day in advance of the time appointed for operation:

Two large china pitchers.

Three new tin wash-basins.

Two three-gallon tin buckets, with tops.

One large tin dipper.

One iron tea-kettle.

One large slop-bucket.

Two dozen towels, freshly laundered.

Two yards white rubber cloth.

Two pairs of new blankets.

Two rubber bags for hot water.

Two new nail brushes.

Two cakes Pears' soap.

One pint alcohol.

Two and a half yards white flannel.

Twenty-five-yard roll of aseptic gauze.

One roll absorbent cotton.

Three ounces chloroform.

One pound ether.

One pint whisky.

One caster iodoform.

Two dozen safety-pins.

On the day appointed for the operation the nurse should arrive at the house two hours in advance of the surgeon, and begin the preparation of the patient and arrangements for the operation. Immediately upon arrival she should repair to a room and exchange her street dress for a clean uniform, leaving off her apron and cuffs until just before the operation is begun. The patient will have been instructed by the surgeon to take a general warm soap and water bath, and to put on fresh clothing. The nurse should see that she is properly dressed for the operation, particularly that she has on a merino vest and heavy hose. She will also give the patient an enema and vaginal douche. She will also see that a clean fresh bed has been provided in accordance with the surgeon's direc-

tions. She will then go to the kitchen, scour and scald the kettle, tin buckets, and dipper to contain the water for the operation. The water to be used in the operation will be provided by the surgeon, and will have been delivered at the house in a six-gallon demijohn. After the tea-kettle and bucket have been thoroughly cleansed, they will be placed upon the stove or range and a good fire made up. After this has been done, some reliable person must be placed as a guard upon the articles containing the water, to see that no one touches them. While the water is being heated, the nurse will scour and scald the tin basins and pitchers, and take them to the improvised operating-room. As soon as the water has boiled, the buckets may be lifted from the stove and placed in front of it so as to keep the water hot. The tea-kettle is left on the stove, to be taken to the operating-room at the last moment, so that boiling water may be used for sterilizing the instruments, ligatures, etc. Attention will be given to having the room provided for the operation of proper temperature. The operating-table should be properly dressed with a clean blanket, rubber cloth, and fresh sheet over all. When the surgeon and assistants arrive, the nurse should see that the patient's bladder is emptied, and enclose the lower limbs in the blanket pro-

vided for the purpose. She will then give her hands and forearms a careful cleansing with hot water, soap, and nail brush, and put on her apron and cuffs preparatory to taking part in the operation. She should then place the sponges in the basins, fill the pitchers with water, cut the gauze, and prepare the bandage. It is very important that the nurse see that every requisite for the operation is in the room before the patient begins to take the anesthetic, remembering that after the operation is begun she can not leave the room without delaying the operation or disturbing the operator.

The same rules already laid down in these pages must be scrupulously observed throughout the operation. In the after-treatment, likewise, the nurse must apply the same methods herein described. She should receive carefully from the surgeon minute directions as to the care of the patient before he leaves the house, and note definitely his exact address, so that she can reach him quickly by telephone or messenger if necessary. The nurse must bear in mind that she represents the surgeon's authority in caring for the patient, and should resist any violation of his instructions or interference in any way by the family or friends of the patient. It is very difficult for the uninitiated to under-

stand how a patient's condition may be endangered and convalescence delayed by the presence of several persons about the bedside. The surgeon will always give specific instructions to the nurse upon this point, and if she is unable to enforce them it will be her duty to promptly notify the surgeon. When the nurse goes to her meals, or goes out of the room for any purpose, it will be necessary to have some member of the family sit with the patient; it is better that some one be selected to do this, rather than introduce a new face at the bedside several times each day. For three days after abdominal section the room must be kept quiet and the patient protected from all perturbing influences. Constant coming in and going out of members of the family, prolonged conversations, assurances of sympathy, etc., keep the patient's mind upon a strain, and deprive her of the rest and mental repose so essential for her welfare during this period.

In the lesser gynæcological operations less elaborate preparations than those described above will be sufficient. It is not necessary to remove carpets, furniture, and hangings from the room, but only to see that the room is thoroughly cleansed and aired the day before the operation is to be performed. No room in which an operation is to be done should ever be swept

during the twelve hours prior to the operation, as it raises a dust most unfavorable for protecting the field of operation from infection. The same care, however, must be observed in all operations, in providing clean utensils for handling the water and sponges, and in arranging every thing about the patient's bed and clothing. In the after-treatment of these operations, likewise after abdominal sections, the nurse should be careful to receive the surgeon's directions as to diet, and personally see that it is invitingly prepared and served. She must also give her personal attention to the ventilation and care of the patient's room.

It devolves upon a nurse in discharging her duties in a patient's home, as it does upon a physician or surgeon, to cultivate a courteous and agreeable manner toward the patient's family and friends as well as the patient herself. While maintaining a dignified bearing, she should be considerate, polite, and obliging to all the inmates of the house with whom she is thrown. It is quite as unbecoming for a nurse, as for a physician or surgeon, to invite conversation upon professional topics by relating professional experiences, with details of cases. To observe the strictest confidence relative to patients, their ailments, and their home-life is a matter of the highest honor.

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